reader would gain any comprehension of the distinction between a case history, sympathetic and subjective in its minute details of descriptive information, and the impartial and objective quantitative individual schedule of statistics. Nor are the different uses of the two—individual aid and social analysis—made clear. In general, however, the technique of case work is well presented.

It is regrettable that Chapin has seen fit to include social surveys under the head "Sampling." A more logical and lucid arrangement would have placed his illustrations in his chapter on case work. The Pittsburg, Syracuse, and Springfield surveys were not samples at all and were not intended to be. All are case studies with the city as a unit. Other types than those cited, quantitative in nature and illustrating the rules he later lays down, have been made and could have been used in exemplification of true sampling. As it is, the reader is completely confused. The latter portion of this section contains a clear presentation of the procedure of sampling.

The chapter on "complete enumeration" consists solely of a detailed account of the Massachusetts State Census of 1915 and would have been much improved by the addition of a summary of principles similar to those included in most of the other chapters.

The most valuable portion of the volume is Part III which deals with special problems connected with field work. While the earlier chapters contain somewhat vague generalities and detailed illustrations, the last two chapters are made up of terse suggestions with pointed illustrations. They constitute the most complete analysis of schedule drafting and editing that has yet been produced and include excellent suggestions on classification and tabulation. Too little space is given to the mailed questionnaire and its peculiar difficulties, but otherwise the ground is well covered.

Field Work and Social Research is an excellent reference work for elementary classes in social research. It leaves room for a carefully prepared volume of rules and cautions for the practical guidance of the social surveyor.

FRANK A. ROSS

The Economic Aspects of Geology. By C. K. Leith. New York: Henry Holt and Company. 1921. xv, 457 pp.

America's Power Resources: The Economic Significance of Coal, Oil, and Water-Power. By Chester G. Gilbert and Joseph E. Pogue. New York: The Century Company. 1921. xiv, 326 pp.

The World War was the occasion for a group of significant books on the place of minerals in war and peace. Among the important American contributions to this field are Eckel's *Coal, Iron, and War,* a revision of Finlay's *Cost of Mining,* the *Geological Survey's World Atlas of Commercial Geology,* and *Political and Commercial Geology* by Spurr and others, not to mention the studies of the Fuel Administration, the Federal Trade Commission, the War Industries Board, and the Treasury Department. The war not only brought with it new problems challenging attention, but incidentally developed a fund of quantitative data

concerning the mineral industry which otherwise could never have been brought together.

In this growing literature of mining economics the two works under review deserve an important place. The purpose of Professor Leith's book is "to explain the nature of the economic demand for the science of geology, and to discuss something of the philosophy of the finding and use of raw materials." The scope and the manner of treatment follow somewhat the author's presentation of the subject in the classroom. Professor Leith's qualifications for his task are exceptional. To a distinguished record as teacher and contributor to the science of geology, he has added an extensive consulting practice and war-time service as mineral adviser to the Shipping, War Trade, and War Industries Boards.

The field covered by the work is broad. The introductory chapters summarize briefly the geology of mineral deposits. The body of the book is devoted to discussion of the minerals of economic importance, each of which is treated under two headings, "geologic features," and "economic features." Additional chapters deal with methods of exploration, valuation, taxation, laws relating to minerals, conservation, international aspects of mineral resources, and geology in war. In such a wide range of subject-matter absolute accuracy is unattainable, and that occasional errors have crept in is evidenced by the statement on page 118 that South Carolina has important reserves of coal. Nor was it to be expected that the book would contain only new matter. The statistical material is for the most part quoted from familiar sources, with the exception of the data presented in Chapter IV, "Some General Quantitative Considerations"—one of the most interesting and valuable parts of the work. In the discussion of the several minerals many sources have been drawn on, and even the more general chapters on economics are largely revisions of papers previously issued by the author himself.

Nevertheless, there is much about the work that will win for it an accepted place. The treatment is remarkably compact, simple, and stripped of irrelevant details. The style is incisive and forceful. If not used as a textbook by teachers of economic geology, the volume will surely be valuable as a reference work. The mining fraternity will read it for its economics, and the student of commercial geography or of the theory of production will find it the best general description of the world's mineral resources that has yet been written.

America's Power Resources, by Pogue and Gilbert, is a very different type of book. It is analytical rather than descriptive, with a central theme and an argument directed to a definite end. The thesis is the need of a "coördinated development of our energy resources" which will (1) eliminate the present appalling wastes in production, (2) transport energy more effectively, and (3) "utilize our energy materials so as to insure a higher recovery of the energy content and a proper employment of the commodity values." The first result is to be attained by integration of mining operations, the second by the development of a common-carrier system of energy-transmission lines, and the third by "furtherance of multiple production, coupled with adequate attention to the efficiency of appliances concerned in utilizing energy."

The authors show that the rapid increase in the mechanical energy at the command of the United States has been the chief element in our material progress. Interesting, though perhaps above the mark, is the calculation that it would take the labor of three billion slaves to accomplish the work done annually by our energy resources.

The book is a revision of Bulletin No. 102 of the United States National Museum, and it has been improved by the revision. It is written in non-technical language. The style is somewhat labored, but so suggestive and stimulating is the subject-matter that the book should have a wide appeal.

The important contribution of the authors is their insistence on the necessity of viewing coal, petroleum, gas, and water-power as a common source of energy, and their courage in outlining a coördinated plan for energy development.

F. G. TRYON

United States Geological Survey

A History of Life Insurance in the United States to 1870; with an introduction to the development abroad. By Charles Kelley Knight. Philadelphia: University of Pennsylvania. 1920. 160 pp.

A history of life insurance, in this or other countries, is not an easy thing to write. It involves a consideration of many factors, actuarial, economic, and sociological—the mathematical foundation of the business; the development of a successful system of organization and management; and the education or self-education of the public in the uses of such an institution. Most of the historical material thus far published in the United States has been either encyclopedic in character or devoted to the glorious details of the past of some particular insurance company. It remained for some one with an interest in analysis and a judgment of significant detail to sift from the mass of facts the broad outlines in the development of life insurance in the United States.

This, I judge, has been the author's purpose. There are two methods of writing such a history, the topical and the chronological, each of which has its advantages. The chronological method has been chosen. An intimation is given in the preface that a process of selection is followed in order to place in relief the history of enduring features of life insurance, and also the "false practices that might recur at some future time"; the "disreputable practices that have been permanently abandoned" have been omitted.

The book contains five chapters: the first is devoted to the development of life insurance abroad, and the remainder are confined to the United States. This preliminary chapter does not carry foreign developments down to the present time or involve any comparison of American and European conditions, but gives, rather, a background of developments in the field before 1800—the basis on which our early attempts to insure lives were built. This period is divided into four stages: (1) the period of experiment; (2) the speculative assessment period; (3) the era of scientific progress; and (4) the advent of modern life insurance. In this early period the foundation of the science of life contingencies was laid, the plan of tontine contracts was developed, and assessment insurance was begun.